GOLIAD COUNTY GROUNDWATER CONSERVATION DISTRICT
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August 22, 2012

Mr. William K. Honker, P. E.
Acting Director
Water Quality Protection Division
U. S. Environmental Protection Agency, Region 6
1445 Ross Ave., Ste. 1200
Dallas, TX 75202-2733

Re: Topics of Discussion for Technical Goliad Aquifer Exemption August 16, 2012 meeting with the EPA Follow-up

Dear Mr. Honker,

The Goliad County Groundwater Conservation District appreciates the opportunity to participate in this meeting. On behalf of GCGCD, President Art Dohmann commented on two items noted below. This letter is a further explanation of those comments along with supporting data.

1. Water wells in the vicinity of the proposed aquifer exemption that tested with levels of Radium 226 of 2 pCi/L and higher.
2. Information on potential vertical conduits existing during the exploration activity.

This is information addressing item 1.
The attached spreadsheet shows the location, date, and test information for the applicable wells. These wells are located east and southeast of the proposed aquifer exemption. These wells are located in the Goliad County Grid 14. GCGCD has test data for 91 wells in Grid 14. Also included is a map showing the location of these wells in reference to the PA-1 production area.

This is information addressing item 2.
In the area of the proposed aquifer exemption, there was extensive borehole drilling done in the early 1980's. Additional extensive borehole drilling was done beginning in July 2006 and continued through August 2008. In December 2006, GCGCD began doing water quality testing of selected wells in the area including one series of split testing of wells with UEC. During these initial tests, GCGCD recorded the first water levels of the two Duderstadt wells that are located up-dip of the proposed aquifer exemption. The shallow well produces from the A sand and the deep well produces from the B sand.
In March of 2007, the Duderstadts experienced dirty water in both of their wells. By July of 2007, five additional domestic water wells located to the northwest and west of the borehole drilling operation experienced dirty water. These seven wells experienced dirty water during the duration of the drilling operations and all seven wells cleared up within a few months of termination of drilling in August of 2008. Five of these wells also developed an iron bacteria formation.

These events were all documented and reported to the Texas Railroad Commission. All of the correspondence with the RRC was sent to Philip Dellinger on August 8, 2012. The RRC never conducted any site inspections citing lack of data, lack of resources, and lack of finances.
The Texas Railroad Commission plugging data for the 2006-2008 drilled boreholes was compiled by Bruce Darling. This document was transmitted to Jose Torres on August 7, 2012. This document shows that numerous boreholes were open for days and weeks before being plugged.
A chart is attached that shows the measured water levels of the two Duderstadt wells from December 2006 to current. Please note the erratic water levels during the time that borehole drilling was in progress. Then note the uniform water levels from November to current. The uniform water levels reflect gradual changes resulting from rainfall activity. When adjusting for difference in height of the measuring point, these two wells have the same water level.
The unanswered question of the erratic water levels and the dirty water wells is what caused this? There is no data to answer that question. Did the extended periods with open boreholes allow substantial rainwater entry? 2007 was a wet year with over 50 inches of rain recorded. Was there a vertical conduit for groundwater to migrate from a higher pressure zone to a lower pressure zone?
Was there a correlation between the open boreholes, the erratic water levels of the A and B Sands, and the dirty domestic water wells? Reliable water quality data and the development of accurate aquifer hydraulic data may be difficult to achieve when the aquifer is stressed and disturbed.

Sincerely,

Arthur A. Dohmann, President,
Goliad County Groundwater Conservation District

Attachments:
Spreadsheet of water wells with Radium 226
Map of water wells with Radium 226
Graphic of Duderstadt two domestic water wells levels
Aquifer Exemption Evaluation- What is known/What is not known
GAM Run09-010 Water Budget for GCGCD
Spreadsheet of "dirty wells"
Map of "dirty wells"